

Patent Claims

1. Method for reducing color moiré in digital images by

- a transformation of the color signals of the image from an initial color space into a luminance channel and into chrominance channels of a luminance/chrominance color space in which the luminance channel remains free of color signals that are transformed into the chrominance channels,
- an energy comparison, image point by image point, between the luminance channel and the chrominance channels that is limited to first selected frequencies in order to determine pixels in which color moiré is present,
- a correction of the energy values of the pixels in which color moiré is present in at least one of the chrominance channels, which correction is limited to second selected frequencies,
- and a transformation of the corrected color signals of the chrominance channels and the color signals of the luminance channel back into the initial color space.

2. Method according to claim 1, wherein the RGB color space, where R is red, G is green and B is blue, serves as initial color space from which the transformation into the luminance/chrominance color space is carried out in that the green color signal is transferred unchanged to the luminance channel, and the chrominance channels r and b are formed by

$$r = \frac{R}{R + G + B} \text{ and } b = \frac{B}{R + G + B}.$$

3. Method according to claim 2, wherein the frequencies present in the luminance channel and in the chrominance channels are split into underfrequency ranges in each of the channels, a first underfrequency range comprising high frequencies, a second underfrequency range comprising middle frequencies, and a third underfrequency range comprising low frequencies.

4. Method according to claim 3, wherein a relative energy comparison measurement EVM which is determined from the ratio of the energy of the middle-frequency second underfrequency range to the sum of the energies of the middle-frequency second underfrequency range and low-frequency third underfrequency range is used for the image point energy comparison.

5. Method according to claim 4, wherein the correction of the energy values of the pixels in which color moiré is present is limited, as a reduction of energy values, to the middle-frequency second underfrequency range in at least one chrominance channel.

6. Method according to claim 5, wherein an attenuation factor α that is linked to the energy comparison measurement serves to reduce energy values.

7. Method according to claim 6, wherein the attenuation factor α corresponds to the energy comparison measurement of the luminance channel.

8. Method according to claim 5, wherein an empirically determined constant serves as attenuation factor α for the energy value reduction.

9. Method according to claim 6, wherein the attenuation factor α corresponds to the product of the energy comparison measurement of the luminance channel and the low-frequency energy value of a chrominance channel.

10. Method for reducing color moiré in digital images, wherein the steps in at least one of claims 1 to 9 are applied multiple times.